

## **Enhancements in the Evaluation of Plutonium Deposited in Lung Tissue**

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The in vivo measurement of plutonium has traditionally relied upon the measurement of a particle-associated radionuclide such as  $^{241}\text{Am}$  or by directly measuring the x-rays emitted from the decay of the plutonium isotopes. Other methods of directly measuring plutonium in vivo have also used the low abundance gamma emissions from plutonium. All of the methods used for the in vivo measurement of Plutonium are highly dependent on the transmission of the photons through interfering structures such as muscle and bone. Recent studies at Lawrence Livermore National Laboratory have identified the optimum method as a function of chest wall thickness for measuring pure  $^{238}\text{Pu}$  and  $^{239}\text{Pu}$  deposited in the lung.

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